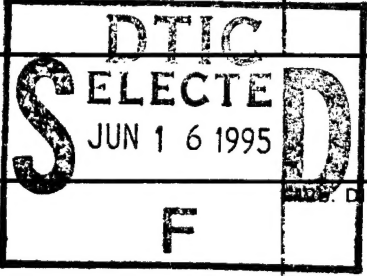


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THE FINAL REPORT ON AIR FORCE GRANT F49620-92-J-0363

The project on synaptic transmission in the squid giant synapse was supported from years 1989 to 1994, and was discontinued due to a drastic reduction of funding to this branch of the Air Force Biological Research Program. Over the period of its tenure many fundamental discoveries were reported from the work supported by this grant. Among them (1) The discovery of P type calcium channels as the main trigger for transmitter release in invertebrates and vertebrate synapses, to include mammalian forms; (2) The first demonstration of calcium microdomains in presynaptic terminals and their role in synaptic transmitter release. In addition, measurements were also done of the maximum concentration attained at these microdomains and the time course for the calcium concentration profile; (3) The mechanisms by which botulinum and tetanus toxin block synaptic release; (4) Finally, the role of high inositol phosphate moieties in synaptic release were also studied. The following set of full papers resulted from these studies:

1. Llinás, R., Sugimori, M., Lin, J.W., and Cherksey, B. Blocking and isolation of calcium channel from neurons in mammals and cephalopods utilizing a toxin fraction (FTX) from funnel-web spider poison. **Proc. Natl. Acad. Sci., USA**, 86:1689-1693 (1989).
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